

# PATENT SPECIFICATION

729,618



Date of Application and filing Complete  
Specification: April 24, 1953.

No. 11444/53.

Application made in Germany on May 5, 1952.  
Complete Specification Published: May 11, 1955

Index at acceptance:—Classes 64(3), S2(A:X); and 99(2), H(4:10:14).

## COMPLETE SPECIFICATION

### Improvements in or relating to Swirl Tubes

We, MANNESMANN AKTIENGESELLSCHAFT, a German Company of Corneliusplatz 1, Düsseldorf, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention is for improvements in or 10 relating to swirl tubes.

In heat exchangers and for other purposes, for example, for the conveyance of mixtures of oil and water use, swirl tubes are frequently employed, such tubes being ones in 15 which the walls have helically extending constrictions. A swirl tube has the property of imparting a rotary motion to the medium flowing therein in addition to the axially directed motion, whereby an improvement 20 in heat transfer is obtained, a factor which would be of prime importance, for example, in heat exchangers, and the only disadvantage which is inherent in swirl tubes as compared with cylindrical tubes is that the loading 25 capacity thereof is smaller because of excess external or internal pressure.

The object of the present invention is to overcome the difficulties mentioned above.

The invention consists in a swirl tube, for 30 example for heat exchangers, wherein the tube is reinforced by reinforcing bands spaced from the ends of the tube and consisting of swirl tube sections, of which the internal dimensions correspond to the external 35 dimensions of the swirl tube.

The reinforcing bands can be disposed at intervals varying in accordance with the level of the pressure loading, and may be shrunk on to the swirl tube. This method 40 of securing the reinforcing bands is sufficient for swirl tubes which are exposed to internal excess pressure but, in order to increase the

[Price 3/-]

resistance of the swirl tube to external excess pressure, the reinforcing bands must be securely welded to the wall of the tube. 45

The present invention will now be more particularly described with reference to the accompanying drawing which illustrates a perspective view partly in section of a swirl tube constructed in accordance with the 50 present invention.

Referring to the drawings, the swirl tube 1 is provided with a number of reinforcing bands 2 arranged at suitable intervals and consisting of swirl tube sections, of which the 55 internal dimensions are the same as the external dimensions of the tube 1. The reinforcing bands may be shrunk on to the swirl tube, but, if it is necessary to reinforce the swirl tube against excess external pressure, 60 they must be securely welded to the outer wall of the tube.

What we claim is:—

1. A swirl tube, for example for heat 65 exchangers, wherein the tube is reinforced by reinforcing bands spaced from the ends of the tube and consisting of swirl tube sections, of which the internal dimensions correspond to the external dimensions of the swirl tube.

2. A swirl tube as claimed in Claim 1, 70 wherein the reinforcing bands are shrunk on to the wall of the tube.

3. A swirl tube as claimed in Claim 1, 75 wherein the reinforcing bands are welded to the wall of the tube.

4. A swirl tube, for example for heat 80 exchangers, constructed, arranged and adapted to operate substantially as hereinbefore described with reference to the accompanying drawing.

G. F. REDFERN & CO.,  
Redfern House,  
Dominion Street, London, E.C.2.

Printed for Her Majesty's Stationery Office by Wickes & Andrews, Ltd., E.C.4. 684/2.—1955.  
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies  
may be obtained.

Price

729,618 COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale.*

